WHAT IS CLAIMED IS:

1. An electrode assembly for a sensor catheter tip, said assembly comprising:

a first electrode and a second electrode, each electrode comprising a body having a center axis and a contact aperture radially spaced from the center axis, the electrodes being axially aligned and spaced apart along the axis; and

a contact element positioned within each said contact aperture;

wherein said contact elements corresponding to each of said first and second electrodes are offset, thereby providing staggered contact points for each respective electrode.

2. An electrode assembly in accordance with claim 1 wherein said contact elements of said first and second electrode are offset approximately 90 degrees from one another.

3. An electrode assembly in accordance with claim 1 wherein each of said first and second electrodes comprise a lead aperture and a contact aperture, said lead apertures of said first and second electrodes are substantially aligned with one another.

4. An electrode assembly in accordance with claim 1 wherein each of said first and second electrodes comprise a disk defined by multiple regions, said contact element positioned in one of said regions, the other of said regions comprising a lead aperture extending therethrough.

5. An electrode assembly in accordance with claim 1 wherein said contact element comprises a tail portion configured for soldering.

6. An electrode assembly in accordance with claim 1 wherein said contact element comprises a plurality of fingers.

7. An electrode assembly in accordance with claim 1 wherein said assembly further comprises a dielectric spacer element disposed between said first and second electrodes, said dielectric spacer element extending at least partially through one of said electrodes.

8. An electrode assembly in accordance with claim 1 further comprising an injection molded dielectric spacer element positioned between said electrodes.

9. An electrode assembly in accordance with claim 1 wherein each of said contact elements have an axial length, said axial length of said contacts different from one another.

10. A catheter tip assembly for an impedance spectroscopy system, said assembly comprising:

a rounded dielectric tip;

a first electrode disk adjacent said tip, said first electrode disk comprising a body having a contact aperture therethrough;

a second electrode disk axially spaced from said first electrode disk, said second electrode comprising a body having a contact aperture therethrough;

wherein said second electrode disk is rotated relative to said first electrode disk about a longitudinal axis so that said contact apertures are circumferentially offset from one another.

11. A catheter tip assembly in accordance with claim 10 further comprising a third electrode disk and a fourth electrode disk, said third and fourth electrode disks substantially identical to said first and second electrode disks;

wherein each of said first, second, third and fourth electrode disks are circumferentially rotated relative to one another.

12. A catheter tip assembly in accordance with claim 10 further comprising first and second contacts configured for electrical connection with wire leads, each of said first and second contacts press fit into a respective one of said first and second contact apertures, one of said first and second contacts extending through a lead aperture in one of said first and second electrode disks.

13. A catheter tip assembly in accordance with claim 10 further comprising first and second contacts inserted through said first and second contact apertures, each of said first and second contacts having a different axial length.

14. A catheter tip assembly in accordance with claim 10 further comprising a dielectric spacer element sandwiched between said first and second electrodes.

15. A catheter tip assembly in accordance with claim 10 further comprising a connector portion on an end of said top assembly opposite said tip, and longitudinally extending contacts respectively coupled to said first and second electrode disks, each of said contacts terminated to a lead wire within said connector portion.

16. A catheter tip assembly in accordance with claim 10 further comprising a coupler portion configured for attachment to a sump tube.

17. A method of fabricating a catheter tip for an impedance spectroscopy system, the catheter tip including a plurality of electrodes with a dielectric material

extending between adjacent electrodes, each of the electrodes including a contact aperture and at least one lead aperture, the electrodes electrically connected to respective contacts, said method comprising:

press fitting one of the contacts to each of the electrodes via the respective contact apertures;

stacking the electrodes and attached contacts; and

rotating each electrode relative to the adjacent electrode in the stack so that the contacts are staggered from one another in the stack.

18. A method in accordance with claim 17 wherein the contacts have different lengths and each of the electrodes has a lead opening, said method further comprising arranging the electrodes such that each respective contact in the stack of electrodes extends through each of the respective lead openings of electrodes having a shorter contact in the stack.

19. A method in accordance with claim 18 further comprising injection molding the electrodes with a dielectric material, thereby forming dielectric spacer elements between the electrodes.

20. A method in accordance with claim 19 further comprising machining the outer surfaces of the electrodes to match an outer surface of the overmolded dielectric.

21. A method in accordance with claim 18 further comprising attaching a lead to each respective contact.

22. A method in accordance with claim 18, the assembly including a tip adjacent a first stacked electrode, said method further comprising overmolding a connector portion opposite the tip.

23. A method in accordance with claim 18 wherein said stacking the electrodes and attached contacts comprises stacking electrodes and dielectric spacer elements so that the spacer elements are sandwiched between the electrodes.

24. A method in accordance with claim 18 further comprising inserting a portion of the tip into the stacked electrodes, and overmolding the stacked electrodes to secure the tip to the electrodes.

25. A method in accordance with claim 18 wherein said press fitting one of the contacts to each of the electrodes via the respective contact apertures comprises press fitting a rim of a contact clip to the contact apertures, whereby a finger extending from the rim extends through the aperture.